Proposed updates to explain coordinate addressing, Wisconsin example

United States Thoroughfare, Landmark, and Postal Address Data Standard

2.2 Address Elements

2.2.1 Address Number Elements

2.2.1.1 Address Number Prefix

Element Name	AddressNumberPrefix
Other common names for this element	Street Number Prefix, Building Number Prefix, House Number Prefix, Site Number Prefix, Structure Number Prefix
Definition	The portion of the Complete Address Number which **precedes** the Address Number itself.
Definition Source	New
Data Type	characterString
Existing Standards for this Element	None
Domain of Values for this Element	Can be created locally from existing values
Source of Values	Local
How Defined	Locally
Example	~~**N6W2** 3001 Bluemound Road~~ **N89W**16758 Appleton Avenue **A** 19 Calle 11 **194-0** 3 Fiftieth Avenue **Milepost** 1303 Alaska Highway
Notes/Comments	1. This element is not found in most Complete Address Numbers. When found, it should be separated from the Address Number so that the Address Number can be maintained as an integer for Federal Geographic Data Committee FGDC Document Number FGDC-STD-016-2011 United States Thoroughfare, Landmark, and Postal Address Data Standard 36 sorting and quality control tests. 2. Informally an Address Number and Address Number Prefix may be written with or without a space between them. Within this standard, the default assumption is that an empty space separates elements unless stated otherwise. The Attached Element can be used to indicate where the assumed space between the Address Number and Address Number Prefix has been omitted within an address file (see Attached Element for additional notes). 3. If a hyphen appears between an Address Number Prefix and an Address Number, the hyphen is included in the Address Number Prefix. 4. 4. Milepost numbers are often used to specify locations on limited access roads such as interstate highways, and along highways and country roads where addressable features are too sparse to assign address numbers. Where it is useful to treat these as addresses, treat "Milepost" (or "Kilometer," in Puerto Rico) as an Address Number Prefix, and the milepost number as the Address Number.

XML Tag	< AddressNumberPrefix >
XML Model	<xsd:complexType name=”AddressNumberPrefix_type”> <xsd:simpleContent> <xsd:extension base=”xsd:string”> <xsd:attribute name=”Separator” type=”addr_type:Separator_type”/> </xsd:extension> </xsd:simpleContent> </xsd:complexType>
XML Example	<CompleteAddressNumber> **<AddressNumberPrefix Separator=””>N89W</AddressNumberPrefix>** <AddressNumber>16758</AddressNumber> </CompleteAddressNumber> <CompleteAddressNumber> **<AddressNumberPrefix Separator=””>A</AddressNumberPrefix>** <AddressNumber>19</AddressNumber> </CompleteAddressNumber>
Quality Measures	AddressNumberFishbonesMeasure RangeDomainMeasure SpatialDomainMeasure TabularDomainMeasure
Quality Notes	Address number prefixes can include map-based information as grid coordinates, references to survey systems or references to sections of Federal Geographic Data Committee FGDC Document Number FGDC-STD-016-2011 United States Thoroughfare, Landmark, and Postal Address Data Standard 37 a subdivision or housing complex. Where a tabular domain of values are available the prefix can be tested against it. The measure chosen will depend on the type of domain involved. See the introduction to this section for information on which measures to use.

2.2.1.2 Address Number

Element Name	ADDRstandard.AddressNumber
Other common names for this element	Street Number, Building Number, House Number, Site Number, Structure Number
Definition	The numeric identifier for a land parcel, house, building, or other location along a thoroughfare or within a community.
Definition Source	New
Data Type	Integer
Existing Standards for this Element	None
Domain of Values for this Element	Can be created locally
Source of Values	Local jurisdiction
Attributes Associated with this Element	Address Number Parity
How Defined	Based on local address ranges associated with individual streets and blocks.

Example	**123** Main Street ~~N4W6 **123** Oak Road~~ N89W**16758** Appleton Avenue **123** B Highway 88
Notes/Comments	1. The Address Number is defined as an integer to support address sorting, parity (even/odd) definition, and in/out of address range tests. 2. The Address Number must be converted to a character String when it is combined with the prefix and suffix into a Complete Address Number. 3. Some addresses may contain letters, fractions, hyphens, decimals, and other non-integer content within the Complete Address Number. Those non-integer elements should be placed in the Address Number Prefix if they appear before the Address Number, or in the Address Number Suffix if they follow the Address Number. For example, if the New York City hyphenated address 194-03 ½ 50th Avenue, New York, NY 11365 were to be parsed rather than represented as a Complete Address Number: • the Address Number Prefix would be "194-0" (including the hyphen and the leading "0"), • the Address Number would be 3 (converted to text in constructing the Complete Address Number), • and the Address Number Suffix would be "1/2." 4. Special care should be taken with records where the Address Number is 0 (zero). Occasionally zero is issued as a valid address number (e.g. Zero Prince Street, Alexandria, VA 22314) or it can be imputed (1/2 Fifth Avenue, New York, NY 10003 (for which the Address Number would be 0 and the Address Number Suffix would be "1/2")). More often, though, zero is shown because the Address Number is either missing or non-existent, and null value has been converted to zero. 5. Address Numbers vs. Address "Letters." In rare instances, thoroughfare addresses may be identified by letters instead of numbers (for example, "A" Main Street, "B" Main Street, "C" Main Street, "AA" Main Street, "AB" Main Street, etc.) A few thousand such cases have been verified in Puerto Rico, and others may be found elsewhere. In such cases, the letter(s) cannot be treated as an Address Number, because an Address Number must be an integer. The letter(s) also cannot be an Address Number Prefix or Address Number Suffix, because neither of those can be created except in conjunction with an Address Number. Instead, the letter(s) should be treated a Subaddress Identifier in an Unnumbered Thoroughfare Address. (For example: Complete Street Name = "Calle Sanchez", Complete Subaddress Identifier = "AB", Complete Place Name = "Mayaguez" State Name = "PR"). As an alternative, the address may be classified in the General Address Class and treated accordingly.
XML Tag	`< AddressNumber >`
XML Model	<xsd:simpleType name=”AddressNumber_type”> <xsd:restriction base=”xsd:string”> <xsd:pattern value=’[0-9]+’ /> </xsd:restriction> </xsd:simpleType>
XML Example	<CompeteAddressNumber>

	~~<AddressNumber>1234</AddressNumber>~~ **<AddressNumber>16758</AddressNumber>** </CompleteAddressNumber>
Quality Measures	Data Type Measure Spatial Domain Measure Range Domain Measure Address Number Fishbones Measure
Quality Notes	The Address Number element is specified as an integer. Data Type Measure is helpful when testing data held in staging tables with variable character fields. Additional tests for the address number require association with a street name.

2.2.1.4 Complex Element: Complete Address Number

Element Name	CompleteAddressNumber
Other common names for this element	Complete street number, full street number, Primary Address Number (USPS), Street Number (USPS), House Number (USPS, Census TIGER)
Definition	An Address Number, alone or with an Address Number Prefix and/or Address Number Suffix, which identifies a location along a thoroughfare or within a community.
Definition Source	New
Data Type	characterString
Existing Standards for this Element	Refer to component simple elements
Domain of Values for this Element	Refer to component simple elements
Source of Values	Refer to component simple elements
How Defined (eg, locally, from standard, other)	Refer to component simple elements
Example	**123** Main Street **123** A Main Street **123** 1/2 Main Street **0** Prince Street, Alexandria VA 22314 **0 1/2** Fifth Avenue, New York, NY 10003 **210** East 400 South, Salt Lake City, UT 84111 **Milepost 240** Parks Highway Alaska **Milepost 72.9** Interstate 84, Wasco County, OR **Kilometer 0.5** Carretera 917, Urbanizacion April Gardens, Las Piedras PR 00771 **Kilometer 2 Hectometer 7** Carretera 175, Barrio San Antonio, Caguas, Puerto Rico 00725 **N89W16758** Appleton Avenue, Menomonee Falls, WI 53051 **W63N645** Washington Avenue, Cedarburg, WI 53012 **5-5415** Kuhio Highway, Hanalei, HI 96714 **194-03 1/2** 50th Avenue, New York, NY 11365 **A** 19 Calle 11, Toa Alta, Puerto Rico

Notes/Comments	1. The Address Number element is required to compose a Complete Address Number. The other elements are optional. 2. The Address Number must be converted from integer to characterString when constructing the Complete Address Number. 3. The great majority of Complete Address Numbers are simple integers. Infrequently the integer is followed by an alphanumeric Address Number Suffix, typically a letter or a fraction. Even more rarely the integer is preceded by an alphanumeric Address Number Prefix. In addition to the typical numbering format, four special-case formats are found in the United States: Milepost addresses, grid-style address numbers, hyphenated address numbers, and other Address Number Prefix letters or symbols. 4. **Milepost Complete Address Numbers (Example: "Milepost 240").** Road mileposts are sometimes used to specify locations along highways and similar roads. Mileposts are often used to locate, for example, crash sites, emergency call boxes, bridge locations, inspection stations, roadside rest stops, railroad crossings, highway exits, park and campground entrances, RV parks, and truck stops. Milepost addresses should be parsed as follows: • "Milepost" (or equivalent word or phrase, such as "kilometer" or 'Mile Marker") is an Address Number Prefix • The milepost number (integer part only) is an Address Number • Tenths, if given, are an Address Number Suffix, including the decimal point. • The road name or highway route number is a Complete Street Name, and parsed accordingly 5. Note that, in Puerto Rico, road measurements are given in kilometers (km), which are sometimes divided into hectometers (hm). 6. **Grid-style Complete Address Numbers (Example: "N89W16758").** In certain communities in and around southern Wisconsin, Complete Address Numbers include a map grid cell reference preceding the Address Number. 7. In the examples above, "N89W16758" was designed ~~should be read~~ as "North 89 West 167~~, Address Number~~ 58". ~~"W63N645" was designed should be read as "West 63, North, Address Number 645."~~ The north and west values specify a locally-defined map grid cell within which the address is located. Local knowledge is needed to know when the grid reference stops and the Address Number begins. In practice, Wisconsin populates the Address Number Prefix as N89W and the Address Number as 16758. In the examples above, "N89W16758" should be read as "North 89 West, Address Number 16758". This follows the actual functional use of the Address Number Prefix and Address Number when locating an address, and reflects how the address number must be parsed to use in a variety of GIS locators, online mapping tools, and E911 Dispatch software in order to successfully match an address to an X/Y location. 8. **Hyphenated Complete Address Numbers (Example: "5- 5415").** In some areas (notably certain parts of New York City, southern California, and Hawaii), Complete Address Numbers often include hyphens. Hyphenated Complete Address Numbers should not be confused with Two Number Address Ranges. The former is a single

	Complete Address Number while the latter includes two Complete Address Numbers. 9. Hyphenated Complete Address Numbers can be parsed so that the number indicating the site or structure is the Address Number, and the remainder (including the hyphen) is the Address Number Prefix or Address Number Suffix. 10. In parts of New York City, hyphenated Complete Address Numbers follow a more complex set of rules. The number to the left of the hyphen indicates the "block" (conceptually--the number does not always change at street intersections and sometimes it changes within a single block face). The number to the right of the hyphen indicates the site or house number within the "block". If the Address Number is less than ten, it is written with a leading zero, as in **194-03 1/2** above. (Additional leading zeros may be added to either number to provide for correct sorting if the entire Complete Address Number is treated as a characterString with the hyphen included.) Within the address standard, these numbers can be constructed and parsed as follows: i. The left-side number (194), the hyphen and the leading 0 form the Address Number Prefix element (text). ii. The right-side number (3) is the Address Number (integer), converted to a characterString upon conversion to Complete Address Number with the leading zero(s) added from the Address Number Prefix. iii. The suffix, if any (such as the "1/2" in 194-03 1/2), is an Address Number Suffix. 11. **Other Address Number Prefix Letters or Symbols.** In Puerto Rico, Address Numbers are commonly preceded by an Address Number Prefix letter (e.g. "A 19"). In Portland, OR, negative Address Numbers have been assigned in an area along the west bank of the Willamette River. The minus sign is represented as a leading zero ("0121" and "121" are two different Complete Address Numbers). In such cases the leading zero should be treated as an Address Number Prefix. 12. **Zero as a Complete Address Number.** Special care should be taken with records where the Address Number is 0 (zero). Occasionally zero is issued as a valid address number (e.g. 0 Prince Street, Alexandria, VA 22314) or it can be imputed (1/2 Fifth Avenue, New York, NY 10003, for which the Address Number would be 0 and the Address Number Suffix would be "1/2"). More often, though, the Address Number is either missing or non-existent, and null value has been converted to zero. 13. **Address Numbers vs. Address "Letters".** In rare instances, thoroughfare addresses may be identified by letters instead of numbers (for example, "A" Main Street, "B" Main Street, "C" Main Street, "AA" Main Street, "AB" Main Street, etc.) A few thousand such cases have been verified in Puerto Rico, and others may be found elsewhere. In such cases, the letter(s) cannot be treated as an Address Number, because an Address Number must be an integer. The letter(s) also cannot be an Address Number Prefix or Address Number Suffix, because neither of those can be created except in conjunction with an Address Number. Instead, the letter(s) should be treated a Subaddress Identifier in an Unnumbered Thoroughfare Address. (For example:

	Complete Street Name = "Calle Sanchez", Complete Subaddress Identifier = "AB", Complete Place Name = "Mayaguez" State Name = "PR"). As an alternative, the address may be classified in the General Address Class and treated accordingly.
XML Tag	< CompleteAddressNumber >
XML Model	<xsd:simpleType name=”CompleteAddressNumber_type”> <xsd:sequence> <xsd:element name=”AddressNumberPrefix” type=”addr_type:AddressNumberPrefix_type” minOccurs=”0” maxOccurs=”1” /> <xsd:element name=”AddressNumber” type=”addr_type:AddressNumber_type” minOccurs=”1” maxOccurs=”1” /> <xsd:element name=”AddressNumberSuffix” type=”addr_type:AddressNumberSuffix_type” minOccurs=”0” maxOccurs=”1” /> </xsd:sequence> <xsd:attribute name=”AddressNumberParity” type=:addr_type:AddresNumberParity_type” /> <xsd:attribute name=”AttachedElement” type=:addr_type:AttachedElement_type” /> </xsd:complexType>
XML Example	<CompeteAddressNumber> <AddressNumber>55</AddressNumber> <AddressNumberSuffix Separator=””>1/2</AddressNumberSuffix> </CompleteAddressNumber> <CompleteAddressNumber> <AddressNumberPrefix Separator=””>MILEPOST</AddressNumberPrefix> <AddressNumber>72.9</AddressNumber> </CompleteAddressNumber>
Quality Measures	PatternSequenceMeasure
Quality Notes	